R E M A R K S

Claim Amendments and New Claims

Claim 9 was amended by including the feature of claim 11, and claim 11 was canceled.

Claim 16 was amended to depend on claim 9 as the result of canceling claim 11.

New claim 30 is supported by page 9, line 26 of the specification.

Rule 116

With respect to Rule 116, entry of the above amendments is respectfully submitted, since the amendment to claim 9 includes a feature that was previously set forth in the claims prior to the final rejection. Although a new claim was added (claim 30), a claim was canceled (claim 11). Therefore, the total number of claims was not increased.

Applicants' Presently Claimed Invention

Applicants' present claim 9 is directed to a loose-lay floor tile which comprises a nonskid backing material on a back face of

the floor tile, wherein the nonskid backing material is obtained by mechanically foaming a paste sol which comprises (a) a plasticizer; (b) at least one polyvinyl chloride-based resin selected from the group consisting of (i) a copolymer of vinyl chloride and vinyl acetate comprising about 3 to 10 mole % of vinyl acetate as a monomer unit and (ii) a mixture of polyvinyl chloride and polyvinyl acetate; and (c) a foam stabilizer of a hydrophobic type to obtain a foamed material, disposing the foamed material on the back face of the tile and then solidifying the foamed material to form the nonskid backing material.

Obviousness Rejection under 35 USC 103

Claims 9, 11, 14, 16, 20 to 24, 26 and 29 were rejected under 35 USC 103 as being unpatentable over USP 3,728,182 to Wisotzky et al. in view of USP 3,560,284 to Wisotzky et al. and JP 49-52860 for the reasons set forth in item no. 4 on pages 2 to 4 of the Office Action.

The applicants respectfully disagree with the rejection for the following reasons.

First of all, it was admitted in the Office Action that USP 3,728,182 to Wisotzky et al. is silent regarding a composition including a comonomer of vinyl chloride copolymer and a silicone surfactant (hydrophobic foam stabilizer) (see page 3, lines 1 to 3 of the Office Action).

USP 3,728,182 to Wisotzky et al. discloses the following in their Abstract in column 1, lines 11 to 24:

> "A method of preparing dimensionally stable solid vinyl resin-backed carpet tiles characterized by a fibrous face, which method comprises: laying the surface of a precoated tufted carpet under pressure between opposing rolls having a fixed adjustable gap therebetween onto the wet surface of a heavily loaded vinyl resin plastisol layer deposited on a release surface while maintaining a rolling bank of a liquid resinous material at the nip of the opposing rolls during the laying process; fusing the heavily loaded vinyl resin layer to the back of the carpet; cooling the fused layer; stripping the fused layer from the release surface; and cutting the solid vinyl resin-backed carpet so prepared into carpet tile sections."

USP 3,728,182 to Wisotzky et al. in column 5, lines 61 to 75 disclose typical vinyl plastisol precoat and backing formulations which may be employed in the practice of their invention, in which the backing formulation is heavily loaded. Such heavily loaded formulation inevitably makes the backing very hard. Such

a hard backing is not appropriate to attain the purpose of applicants' presently claimed invention.

The requirements necessary for a nonskid backing material are summarized in item numbers 1) to 3) on page 4 of the present specification. It would be clear to any one of ordinary skill in the art that the heavily loaded plastisol composition as disclosed by USP 3,728,182 to Wisotzky et al., which should be considered to be difficult to provide "dimensionally stable solid vinyl resin-backed carpet tiles", could not satisfy these requirements. In contrast to USP 3,728,182 to Wisotzky et al., the floor tile of the presently claimed invention does not relate to a "carpet tile" as discussed hereinafter, and the dimensional stability is maintained by the floor tile itself and it is not necessary that the backing has a property to give the floor tile a dimensional stability.

The requirement of the backing of the presently claimed invention is quite different from that of the backing of USP 3,728,182 to Wisotzky et al. The nonskid property obtained by the foamed layer of the heavily loaded backing layer, as disclosed in USP 3,728,182 50 Wisotzky et al., even if it is

embossed, would not be sufficient in the presently claimed invention, which will be discussed hereinafter in detail in the argument with respect to claim 26.

USP 3,728,182 to Wisotzky et al. further disclose in column 6, lines 19 to 42 the following:

> "The backing layer formulation employed has been described in the preferred embodiment as a heavily loaded vinyl resin plastisol; however, it is recognized and within the scope of the invention that other compositions may be employed, such as any natural and synthetic elastomeric composition or other polymers suitable for forming a backing layer carpet or carpet tile. Such formulations may include, where desired, blowing agents so that a cellular product may be produced by heating the blowing agent after the lamination or laying-in step... Further, if desired, a mechanically formed foam layer may be employed as the backing layer; for example, a vinyl resin plastisol having a surface tension depressant, such as a dimethoxy siloxane into which or is mechanically beaten to form a liquid vinyl foam composition."

On page 3, lines 3 to 9 of the Office Action, the following is stated:

> "However, the invention of Wisotzky et al. ('284) relates to a carpet having a non-skid backing of <u>fused plastisol</u> [col. 3, ll. 34-47; col. 5, ll. 75]. The plastisol comprise a vinyl chloride based polymer,

> preferably a vinyl chloride/vinyl acetate copolymer, wherein the vinyl acetate component of the copolymer is in the range of 5 to 15% by weight. Conventional plasticizers such as dioetyl phthalate (phthalic acid based plasticizer) are employed. Plasticizers are employed at a level of 60 to 120 parts of plasticizer per 100 parts of resin on a weight basis [col.3, ll. 66 through col. 4, ll. 2]." (emphasis added)

However, as discussed in detail in the previous AMENDMENT UNDER 37 CFR 1.111 filed on May 14, 2008, the plastisol as indicated above is not used as a backing of the carpet of USP 3,560,284 to Wisotzky et al. in a sense of the backing material of the presently claimed invention. The plastisol layer 12 disclosed by USP 3,560,284 to Wisotzky et al. is used to bind the base fabric and tufted yarns together before the closed-cell layer 17 is laminated thereon (see the ABSTRACT and column 3, lines 34 to 47 and FIGS. 1 to 3 of USP 3,560,284 to Wisotzky et al.). Stated differently, the backing material in USP 3,560,284 to Wisotzky et al. is a closed-cell layer 17 which is laminated on the layer of the plastisol.

The following is asserted in the Office Action: "the invention of Wisotzky et al. ('284) relates to a carpet having a non-skid backing of fused plastisol [col. 3, ll. 34-47; col. 5, ll. 75]"

should be replaced with: "the invention of Wisotzky et al. ('284) relates to a carpet having a non-skid backing of closed-cell layer 17 [col. 3, ll. 34-47; col. 5, ll. 75]" (emphasis added)

Thus, USP 3,560,284 to Wisotzky et al. fails to teach or suggest that a plastisol comprising 3 to 15% by weight of vinyl acetate is suitable for a non-skid backing of a floor tile, but disclose only that a plastisol comprising 3 to 15% by weight of vinyl acetate is suitable as the material of plastisol layer 12 disclosed by USP 3,560,284 to Wisotzky et al. used to bind the base fabric and tufted yarns together.

It would be recognized that the plastisol of USP 3,560,284 to Wisotzky et al. may correspond to the plastisol used as the precoat formulation of USP 3,728,182 to Wisotzky et al. when a backing made of heavy loaded vinyl resin plastisol is laminated thereon. With respect to the backing in the embodiment disclosed in column 6, lines 19 to 42 of USP 3,728,182 to Wisotzky et al., it is respectfully submitted that one of ordinary skill in the art would not be motivated by the disclosure of USP 3,728,182 to Wisotzky et al. to use the plastisol comprising 3 to 15% by weight of vinyl acetate as the backing material of USP 3,560,284

to Wisotzky et al., because USP 3,560,284 to Wisotzky et al. fails to teach or suggest that the plastisol comprising 3 to 15% by weight of vinyl acetate is suitable for a nonskid backing material.

With respect to the features of the plasticizer, the Office Action relies on the teachings of USP 3,560,284 to Wisotzky et al. in column 3, line 66 through column 4, lines 2. However, these teachings also relate to the plasticizer usable as the material of plastisol layer 12 disclosed by USP 3,560,284 to Wisotzky et al. used to bind the base fabric and tufted yarns together. USP 3,560,284 to Wisotzky et al. do not teach or suggest that the plastisol containing such plasticizer is suitable for a nonskid backing of a floor tile.

Regarding the silicone surfactant, the Office Action relies on the teaching of JP 49-52860. However, JP 49-52860 discloses a method for producing a molded foamed article having a skin layer. The following is recited in the claim of JP 49-52860:

> "Method for producing molded foamed article having skin layer which comprises adding a foam stabilizer into a polyvinyl plastisol to obtain a mixture, mixing bubbles by mechanically stirring said mixture to obtain a foamed material, filling the obtained

> foamed material into a mold, gelling and melting the plastisol forming the foamed material by heating the foamed material at first at a high temperature of 200°C or more and then at a relatively low temperature of 140°C to 170°C and released from the mold by cooling."

In lines 6 to 17 in the right-upper column on page (2) of JP 49-52860, the following is disclosed:

> "As a result of various study for obtaining a foamed material which has a thick skin layer having a thickness of 200 μ or more and an excellent foam structure in which the gelling reaches sufficiently into the inside of the foamed material, it was found that such purpose was attained by heating the foamed material at first at a high temperature of 200°C or more and then at a relatively low temperature of 140°C to 170°C. When the foamed material is heated at a temperature lower than 200°C, a thick skin layer cannot be obtained. When the temperature at the next stage is lower than 140°C, it is difficult that the polyvinyl chloride is melted. When the temperature at the next stage is higher than 170°C, the foams which exist just inside the skin layer is broken and become coarse and the skin becomes in a condition as if it is floating."

Although the use of a silicone surfactant is disclosed in lines 13 to 17 in the right-lower column on page (2) of JP 49-

52860, it is clear that the technical solution of JP 49-52860 obtained by the use of silicone surfactant is distinguishably different from that of the presently claimed invention. JP 49-52860 fails to teach or suggest that the molded foamed article having a skin layer is suitable for the nonskid backing of the presently claimed invention.

It would be clear to one of ordinary skill in the art that the presence of a thick skin layer has an adverse effect for a nonskid property in the presently claimed invention. In addition, at a high temperature of 200°C or higher, the floor tile itself would be damaged by the high temperature (see page 8, item number (i) of the present specification). It is respectfully submitted that one of ordinary skill in the art would not consider to modify the plastisol mixture of Wisotzky et al. with a silicone surfactant taught by JP 49-52860 because of a desire to obtain the beneficial effect of the silicone surfactant by JP 49-52860 to attempt to arrive at the presently claimed invention.

With respect to applicants' claims 24 and 25, the following is stated in the paragraph bridging pages 3 and 4 of the Office Action:

> "For claims 24 and 25, since the collective teachings of the prior art render the general structure and composition obvious, and for the same end use as the claimed invention, a workable expansion ratio is deemed to be an obvious optimization to one of ordinary skill in the art, dictated by the same required foam properties for the same use."

The applicants consider it has been demonstrated from the discussions set forth in detail above that "the collective teachings of the prior art do not render the general structure and composition obvious." Furthermore, the expansion rate defined in applicants' claims 24 and 25 is not an obvious optimization. For a PVC-based mechanically foamed material, it is suitable that the expansion rate is about 1.5 to 4 and preferably about 2.5 to 3. When the expansion rate exceeds about 4, the material shows a marked shrinking during curing by heating, and there is the possibility that workability in coating decreases during application of the foamed sol at a speed of

coating of 10 m/minute or greater (the sol does not extend smoothly due to the great expansion rate, i.e., due to a great viscosity) (see page 7, lines 17 to 23 of the present specification). Such feature of expansion rate is closely related to the feature of the polyvinyl chloride resin composition as defined in claim 9 and cannot be worked out by mere routine type tests.

With respect to applicants' claim 26, the following is stated on page 4, lines 3 to 5 of the Office Action:

> "For claim 26, Wisotzky et al. ('182) teaches that the foam material is embossed to form a skid-resistant backing, and Wisotzky et al. ('284) exemplifies the non-resistant pattern as a waffle-like pattern [column 2, line 46] which comprises crossed stripes."

However, applicants' present claim 26 is not a structure in which the foam material is embossed to form a skid-resistant backing. Applicants' present claim 26 is directed to the following: "A loose-lay floor tile according to claim 24, wherein the foamed material is disposed in a manner such that said foamed material forms stripes on the back face of said tile."

As clearly realized from Fig. 1 of the present application, the foamed material is disposed forming strips directly on the back face of the floor tile, which is not foamed. By forming such a structure, in combination with the characteristics of the composition of the foamed material, sufficient nonskid characteristics can be obtained by the working mechanism that slippage is prevented by the combination of the friction coefficient with the ground coat (surface coating on the floor, such as mortar) being surely maintained at a specific value and the absorption of stress by deformation of the backing material (the working mechanism that the stress in the direction of slippage is absorbed by friction and deformation), but not with the tackiness of an adhesive (see page 5, lines 19 to 25 of the present specification).

When the foam material as taught by USP 3,728,182 to Wisotzky et al. is embossed, the protruded portions of embossing would be absorbed with the foamed backing layer when a load is applied to the tile, and the backing would be flattened as a whole, and a sufficient non-skid property would not be obtained. The working mechanism of the non-skid property obtained by embossing the foamed backing is attributed only to the irregular

surface obtained by embossing and is quite different from that of the presently claimed invention as discussed above, and the non-skid effect would be insufficient for the purpose of the presently claimed invention.

With respect to applicants' claim 30, none of the cited references tech or suggest a floor tile made of a plastic. All of the references relate to a "carpet tile," but not to a "floor tile." Indeed, as clearly understood from the disclosure on page 9, lines 25 to 26 of the present specification and from applicants' Fig. 1, the presently claimed invention relates to a loose-lay floor tile which is a piece of a flat sheet made of a plastic.

It is common knowledge to one of ordinary skill in the art that a "floor tile" does not mean a "carpet tile." This is clear from the enclosed copy of the English-language translation of JIS A 1454 entitled "Test Methods-Resilient Floor Coverings" (which is disclosed on page 10, line 10 of the present specification). In Table 1 of JIS A 1454, the type of floor tile is defined. As seen in said Table 1, a carpet tile which contains a layer of textiles is not included in the category of "floor tile." Floor

coverings laminated with textiles or non-woven fabrics are classified in Table 2 of JIS A 1454 as a "floor sheet."

Furthermore, the standard for a "tile carpet" or "carpet tile" is specified in JIS L 4406. Copies of the cover page, the front page, the colophon and the back cover of which and an English-language translation of the head portion of the first page are attached. As can be seen from JIS L 4406, it is clear that the floor tile of the presently claimed invention has a distinguishably different structure from that of the carpet tile which is referred to in the cited references and defined in JIS L 4406 as different category of a floor covering. In the case of a floor tile which is only a piece of a semi-rigid or a rigid plastic, skidding of the floor tile provides a more serious problem when compared to carpet tiles, which are more likely to fit with the surface of a floor. The presently claimed invention serves as a countermeasure for solving such problem.

Therefore, even in applicants' claim 9 in which it is not explicitly recited as "made of a plastic" as in applicants' claim 30, the term "floor tile" should not be considered to be a "carpet tile." From such point of view, the cited references are

considered not to be relevant to the presently claimed invention, which is quite different in structure and the technical problems to be solved, from the carpet tiles disclosed by USP 3,728,182 to Wisotzky et al.

Applicants respectfully submit that one of ordinary skill in the art would not consider to combine USP 3,728,182 to Wisotzky et al. with USP 3,560,284 to Wisotzky et al. for the following reasons.

On page 3, line 12 of the Office Action, MPEP §2144.07 is referred to as a basis to support a *prima facie* obviousness determination. In the first paragraph of MPEP §2144.07, the following is stated:

> "(Claims to a printing ink comprising a solvent having the vapor pressure characteristics of butyl carbitol so that the ink would not dry at room temperature but would dry quickly upon heating were held invalid over a reference teaching a printing ink made with a different solvent that was nonvolatile at room temperature but highly volatile when heated in view of an article which taught the desired boiling point and vapor pressure characteristics of a solvent for printing inks and a catalogue teaching the boiling point and vapor pressure characteristics of butyl carbitol."

It appears that MPEP §2144.07 was cited in the Office Action as a basis of the obviousness rejection to select the plastisol comprising 3 to 15% by weight of vinyl acetate used to bind the base fabric and tufted yarns together before the thermoplastic sheet is laminated thereon taught in USP 3,560,284 to Wisotzky et al. as the vinyl plastisol formulation used in the backing layer 52 of USP 3,728,182 to Wisotzky et al.

The applicants disagree with applying MPEP §2144.07 as the basis of the obviousness rejection of the presently claimed invention for the following reasons.

If the "printing ink comprising a solvent having the vapor pressure characteristics of butyl carbitol" recited in MPEP §2144.07 is supposed to be the backing layer 52 of USP 3,728,182 to Wisotzky et al., the "printing ink made with a different solvent that was non-volatile at room temperature, but highly volatile when heated" in MPEP §2144.07 should be the closed-cell layer 17 which is laminated on the plastisol layer 12 of the plastisol in USP 3,560,284 to Wisotzky et al., but not the plastisol layer 12. Although USP 3,560,284 to Wisotzky et al. teach to use a plastisol comprising 3 to 15% by weight of vinyl

acetate as the plastisol layer 12, which is disposed under the closed-cell layer 17, USP 3,560,284 to Wisotzky et al. fail to teach or suggest to use the copolymer as the backing layer instead of the closed-cell layer 17. The characteristics required for the nonskid backing material of the closed-cell layer 17 and that for the material for binding the base fabric and tufted yarns together used in the plastisol layer 12 may not be the same.

If the "vapor pressure characteristics of butyl carbitol" recited in MPEP §2144.07 is supposed to represent the characteristics required for the vinyl plastisol formulation used in the backing layer 52 of USP 3,728,182 to Wisotzky et al., the "vapor pressure characteristics of the different solvent for printing inks" recited in MPEP §2144.07 should represent the characteristics required for the closed-cell layer 17 of USP 3,560,284 to Wisotzky et al. Thus, USP 3,560,284 to Wisotzky et al. do not teach or suggest the "vapor pressure characteristics of the different solvent for printing inks" referred to in MPEP §2144.07.

In view of the above, it is respectfully submitted that the application of MPEP §2144.07 as a basis of the obviousness

rejection over USP 3,728,182 to Wisotzky et al. in view of USP 3,560,284 to Wisotzky et al. is not appropriate.

It is therefore respectfully submitted that one of ordinary skill in the art would not consider to combine USP 3,728,182 to Wisotzky et al. with USP 3,560,284 to Wisotzky et al. to attempt to arrive at the presently claimed invention.

Withdrawal of the 35 USC 103 rejection is therefore respectfully requested.

Reconsideration is requested. Allowance is solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,

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(2) a copy of portions of JIS L 4406 and an English-language translation of a portion thereof

JIS

JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS A 1454 : 1998

Test methods—
Resilient floorcoverings

ICS 91.060.30

Descriptors : floors, floor coverings, tiles, plastics and rubber technology, vinyl resins, linoleum, testing

Reference number : **JIS A 1454 : 1998 (E)**

Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of International Trade and Industry through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law:

Date of Establishment: 1998-04-20

Date of Public Notice in Official Gazette: 1998-04-20

Investigated by: Japanese Industrial Standards Committee
Divisional Council on Architecture

JIS A 1454:1998, First English edition published in 2001-12

Translated and published by: Japanese Standards Association
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

In the event of any doubts arising as to the contents, the original JIS is to be the final authority.

Test methods—Resilient floorcoverings

Introduction This Japanese Industrial Standard specifies the test methods of the resilient floorcoverings such as vinyl floorcoverings, linoleum floorcoverings and rubber floorcoverings which are used for floors in the buildings. When **JIS A 5705** : 1992 *Floorcoverings—PVC* was revised, it was found that the test method of the floorcoverings was not specified in **ISO**. Subsequently, **ISO** requested Japan to propose the test method of floorcoverings and Japan had proposed it to **TC59 SC3** in May 1995. The test method of not only the vinyl floorcoverings but also all of the resilient floorcoverings for common use had been proposed. This Japanese Industrial Standard has been legislated for the test method which had been proposed to **ISO**.

1 Scope This Standard specifies the test method for the resilient floorcoverings such as vinyl floorcoverings, linoleum floorcoverings and rubber floorcoverings which are mainly used for floors in the buildings.

2 Normative references The standards described in Attached Table 1 contain provisions which, through reference in this Standard, constitute provisions of this Standard. The most recent editions of those standards shall be applied.

3 Definitions The definition of terms used in this Standard shall be in accordance with **JIS A 0201** and **JIS K 6900**.

4 Type of the floor materials The type of the floor materials shall be classified into a floor tile and floor sheet according to their shapes.

4.1 The type of vinyl floorcoverings are shown in Table 1 and Table 2 in accordance with **JIS A 5705**.

Table 1 Type of the floor tile

Type		Binder(1) content (%)	Symbol
Homogeneous vinyl floor tiles(2)		not less than 30	HT
Composition vinyl floor tiles	semi-rigid plastic	less than 30	CT
	non-rigid plastic	less than 30	CTS

Notes (1) The binder is composed of vinyl resins, plasticizer, and stabilizer.

(2) Pure vinyl floor tile (without the filler) and laminated vinyl floor tile are contained in homogeneous vinyl floor tiles.

Table 2 Type of the floor sheet

Type	Structure	Symbol
Vinyl floor sheet without foam layers	Single substance	NM
	Sheet laminated with textiles	NC
	Sheet laminated with non-woven fabric	NF
	Sheet laminated with other materials than textiles and non-woven fabric	NO
Vinyl floor sheet with foam layers	Sheet laminated with textiles	DC
	Sheet laminated with non-woven fabric	DF
	Sheet laminated with other materials than textiles and non-woven fabric	DO
	Sheet laminated with non-woven fabric and having printed patterns	PF
	Sheet laminated with other materials than textiles and non-woven fabric and having printed patterns	PO

4.2 The types of the linoleum floorcoverings shall be as follows.

a) Linoleum floor tile (symbol LT)

b) Linoleum floor sheet (symbol LS)

4.3 The types of the rubber floorcoverings shall be as follows.

a) Rubber floor tile (symbol RT)

b) Rubber floor sheet (symbol RS)

5 Test items and applied floorcoverings The test items and applied floorcoverings shall be in accordance with Table 3.

Table 3 Test items and applied floorcoverings

Test item		Clause for applied test method	Applied floorcovering					
			Vinyl		Linoleum		Rubber	
			Tile	Sheet	Tile	Sheet	Tile	Sheet
Dimension and squareness of floor tile	thickness	**6.3**	○		○		○	
	width, length	**6.3**	○		○		○	
	squareness	**6.3**	○		○		○	
Dimension of floor sheet	thickness	**6.4**		○		○		○
	width, length	**6.4**		○		○		○
Dent test		**6.5**	○	○	○	○	○	○
Residual dent test		**6.6**	○	○	○	○	○	○
Change test of length by heating		**6.7**	○	○	○	○	○	○
Change test of length by water absorption		**6.8**	○	○	○	○	○	○
Heating loss test		**6.9**	○	○	○	○	○	○
Staining test		**6.10**	○	○	○	○	○	○
Colour fading test		**6.11**	○	○	○	○	○	○
Slip test		**6.12**	○	○	○	○	○	○
Abrasion test		**6.13**	○	○	○	○	○	○
Flame retardance test		**6.14**	○	○	○	○	○	○
Delamination strength test		**6.15**		○(3)				
Caster test		**6.16**	○	○	○	○	○	○
Flexibility test		**6.17**	○	○	○	○	○	○
Electrostatic test		**6.18**	○	○	○	○	○	○

Note (3) This test shall be applied to the vinyl floor sheets with foaming layer.

6 Test method

6.1 General conditions of test The general conditions of test shall be as follows.

a) The test shall be carried out under the standard conditions, unless otherwise specified. The standard condition means 20 °C class 2 in temperature, 65 % class 10 in humidity [20 ± 2 °C, (65 ± 10) %] as specified in **JIS Z 8703**.

b) When the test is carried out with a tester or a measuring instrument whose units are conventional, the conversion of the measured values to those of SI (International System of Units) shall be in accordance with the following equation.

$$1\ \text{kgf} = 9.80\ \text{N}$$

c) The materials of the test stand on which test pieces are placed shall be in accordance with any one of those shown in Table 4.

The size of the test stand shall be at least 20 mm larger than each of four sides of the test piece.

Table 4 Test stand

Test stand	Materials
Polished plate glass	Plate of not less than 6 mm in thickness specified in **JIS R 3202**
Stainless steel plate or sheet	Plate made of SUS 304 of not less than 3 mm in thickness specified in **JIS G 4305**

6.2 Test piece

a) A test piece of the floor tile shall be in accordance with Table 5.

The test piece of the floor tile, after standing it for at least 24 h in a test room under the conditions given in **6.1 a)**, shall be sampled from the positions shown in Fig. 1 according to its width and dimension, and marked with the symbol.

Table 5 Test piece of the floor tile

Testing item		Symbol	Size mm
Dimension and squareness		—	Product in a full size
Dent size mm	20 °C	A—1	100 × 100
	45 °C	A—2	100 × 100
Rate of residual dent size		B	50 × 50
Rate of change for length by heating		—	Product in a full size
Rate of change for length by water absorption		—	Product in a full size
Rate of heating loss		D	100 × 100
Staining		E	100 × 100

Remarks : For the test pieces other than specified in Table 5, those of the size specified in each test method shall be selected.

Unit : mm

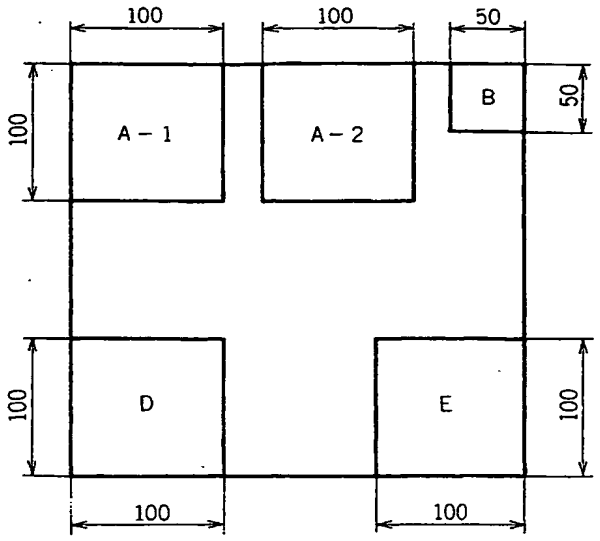

Fig. 1 Sampling positions of test pieces for the floor tile

b) A test pieces of the floor sheet shall be in accordance with Table 6.

For the test piece of the floor sheet, samples I, II and III shall be taken by cutting from the positions shown in Fig. 2 according to their widths and dimensions, and marked with symbols for indicating its top and bottom. The samples shall be spread to flat, and stood for at least 24 h in a test room under the conditions given in **6.1 a**). The test pieces shall be taken from the positions shown in Fig. 3, and marked with the symbols.

Table 6 Test pieces of the floor sheet

Testing item		Symbol	Size mm
Size		—	Product in a full size
Dent size mm	20 °C	A—1	100 × 100
	45 °C	A—2	100 × 100
Rate of residual dent size		B	50 × 50
Rate of change for length by heating		C	300 × 300
Rate of heating loss		D	100 × 100
Staining		E	100 × 100

Remarks : For the test pieces other than specified in Table 6, those of the size specified in each test method shall be selected.

Unit : mm

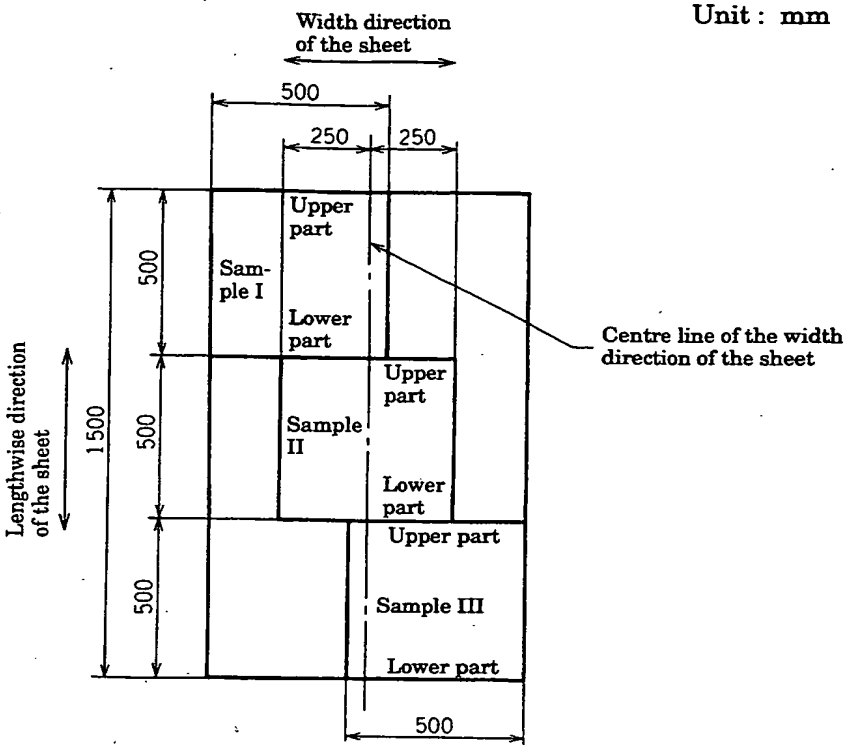

Fig. 2 Sampling positions of the floor sheet

Unit : mm

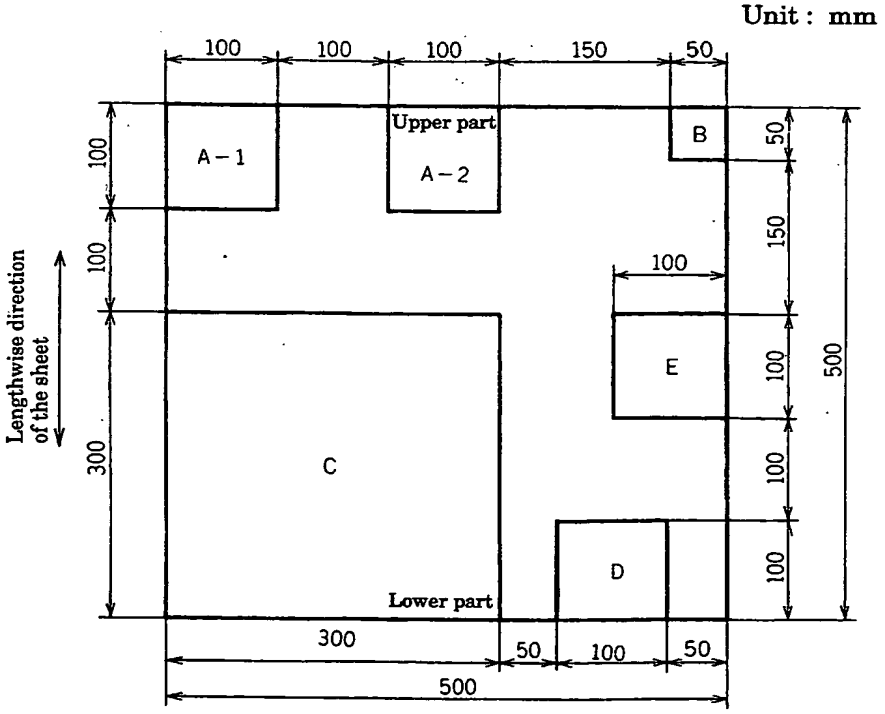

Fig. 3 Sampling positions of test pieces for the floor sheet

6.3 Dimensions and squareness of the floor tile Dimensions and squareness shall be measured in accordance with the following method.

a) Thickness shall be measured by using a measuring instrument with a precision of 0.01 mm. The contact zone of the measuring instrument with a test piece shall be a circle whose diameter is at least 6 mm. The measuring positions of thickness shall be 4 points (a, b, c and d) which are 10 mm inside each from both sides of longitudinal and lateral sides of the floor tile as shown in Fig. 4. The thickness shall be given with an average of the measured values.

When the test piece is uneven, the convex part shall be measured.

b) Width and length shall be measured by using a measuring instrument with a precision of 0.05 mm. The measuring positions of the width and length shall be, as shown in Fig. 4, taken three marked lines (AB, DC, EF, A′D′, B′C′ and E′F′) respectively, both in longitudinal and lateral directions of the floor tile.

The width and length shall be given with an average of the measured values.

Unit : mm

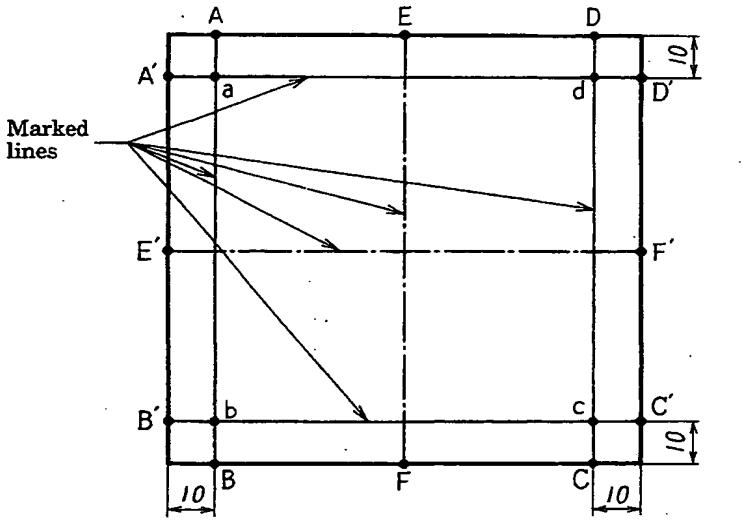

Fig. 4 Measuring positions of dimensions

c) The squareness shall be measured by putting a floor tile on a flat test desk. When one side of the tile is pressed lightly to touch one side of the measuring tool(4) as shown in Fig. 5, the gap against the other sides of floor tile shall be measured with a dial gauge specified in **JIS B 7503** and obtained at the maximum value. When the gap against the other side is observed not at an edge but at the middle of the side as shown in **b**) of Fig. 5, this gap also shall be read.

The measurement shall be carried out on each of four sides of the floor tile.

Note (4) An L-shaped steel square specified in **JIS B 7526** shall be employed as a measureing tool. The lengths of the both sides shall be longer than that of the maximum side of the floor tile.

Unit : mm

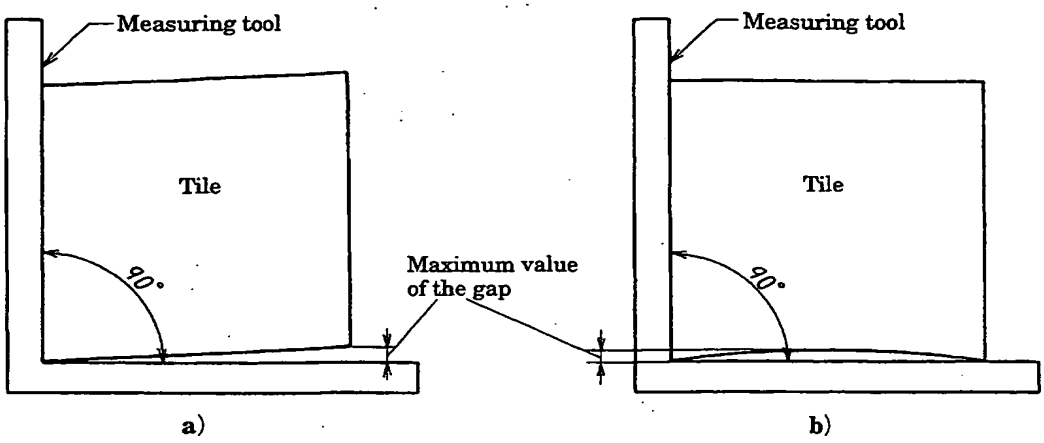

Fig. 5 Measuring position of squareness of the floor tile

6.4 Dimension of the floor sheet Dimension of the floor sheet shall be measured according to the following methods under the conditions of the ordinary temperature and ordinary humidity.

Remarks : The ordinary temperature and ordinary humidity mean 20 °C class 15 in temperature, 65 % class 20 for humidity [20 ± 15 °C, (65 ± 20) %] specified in **JIS Z 8703**.

a) Thickness shall be measured by using a measuring instrument with a precision of 0.01 mm. The measuring positions of the thickness shall be total 10 points as shown in Fig. 6. Cut off to discard a part of approximately 300 mm from the end of a roll, and cut off a part of 1 500 mm from the cutting-line perpendicular to the lengthwise direction of the sheet across overall width. On this cutting part, take four points (a, b, c and d) each 20 mm inside from both ends in lengthwise direction and each 200 mm inside from both ends in transverse direction, and six points (e, f, g, h, i, and j) which are divided between "a" and "b", and between "c" and "d" into quarters respectively. The thickness shall be given with an average of the measured values.

When the test piece is uneven, the convex part shall be measured.

Unit : mm

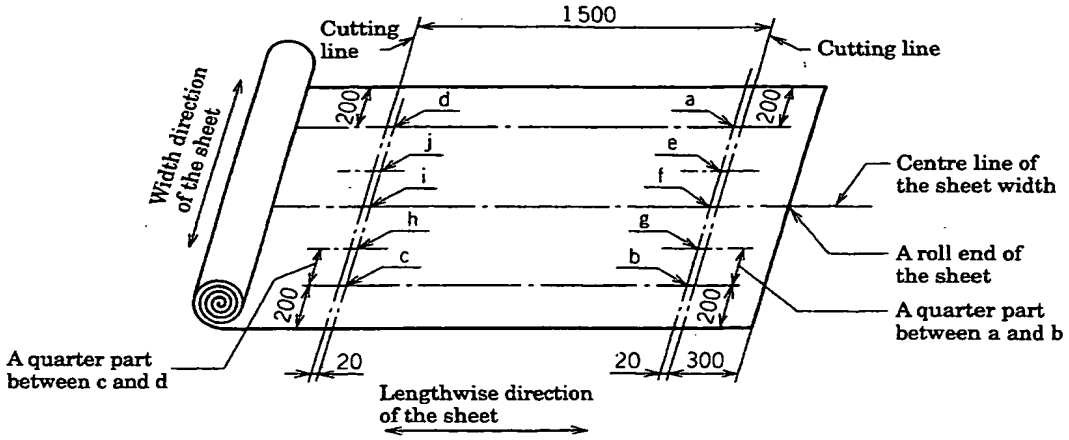

Fig. 6 Measuring position of thickness of the floor sheet

b) The length shall be measured on the shortest path in a roll of floor sheet by using a measuring instrument with a precision of 1 cm.

c) The width shall be measured at three points where are near to the both sides in longitudinal direction and at the center by using a measuring instrument with a precision of 1 mm.

The width shall be given with an average of the measured values.

6.5 Dent test For the test, a dent tester which can apply the load of 133 N by using a steel rod, whose tip end is hemisphere with 6.35 mm in diameter, shall be employed.

Turn the surface of test piece upward and place it on the test stand specified in Table 4. Allow to stand the test piece horizontally for 15 min in water of a thermostat which is maintained at 20 ± 1 °C or 45 ± 1 °C in temperature, place the testing machine which is kept the same temperature as that of water into the same thermostat and measure the dent in water.

When temperature conditions are satisfied, the dent may be measured in air.

After loading of 9 N to a test piece, adjust the dial gauge which is specified in **JIS B 7503** and installed on the testing machine, to the point zero within 5 s, and read the dent size by using the dial gauge after 1 min from applying the load (after 30 s at 45 ± 1 °C in temperature).

6.6 Residual dent test For the test, a residual dent tester which can apply the load of 356 N by using a supporting board of a test piece and a steel rod whose top end is flat and 4.5 mm in diameter shall be employed.

Allow to stand a test piece for at least 1 h in a laboratory under the conditions specified in **6.1 a)**. Turn the surface of test piece upward and place it on the test stand specified in Table 4. Then, place test piece on the testing machine and apply the load of 356 N for 10 min. However, for PF of the vinyl floor sheets with foamed layer, apply the load of 222 N for 5 min by using a steel rod with the hemispherical tip end of 19 mm in diameter. Read the dent size after 10 min or 5 min of the weight loading and take the values as a primary dent size.

Then, read the dent size after 60 min from the removal of load by using the dial gauge specified in **JIS B 7503** and take it as the residual dent size. Each value shall be recorded.

Ratio of residual dent size shall be obtain, if necessary. Ratio of residual dent size shall be calculated according to the following formula.

$$D = \frac{T_0 - T_1}{T_0} \times 100$$

where, D : ratio of residual dent size (%)
T_0 : thickness before test (mm)
T_1 : thickness after test (mm)

6.7 Change test of length by heating The length shall be measured by using a measuring instrument with a precision of 0.05 mm. Turn the surface of test piece upward and place it on the test stand specified in Table 4. Allow to stand a test piece for at least 12 h in a laboratory under the conditions specified in **6.1 a)**, and measure the length of three marked lines (AB, CD, EF, A′D′, B′C′ and E′F′) respectively, both in longitudinal and lateral directions of test piece as shown in Fig. 4 for the floor tile and in Fig. 7 for the floor sheet, and obtain each average value.

Then, place test piece horizontally in a thermostatic oven with a stirrer (the capacity whose one side is at least 45 cm shall be used.), keeping a distance of 5 cm or over from the inner wall of the oven against relative positions respectively. Keep the test piece at 80 ± 2 °C in temperature for 6 h, take out and allow to stand it for approximately 1 h in a room.

Measure the length of each marked line(5) to obtain the ratio of change to the length before test.

Change ratio of length by heating for each width and length shall be calculated according to the following formula.

$$L_h = \left| \frac{L_0 - L_1}{L_0} \right| \times 100$$

where, L_h : change ratio of length by heating (%)
L_0 : length before test (mm)
L_1 : length after test (mm)

Note (5) When a test piece has been warped during test, flatten it by applying an appropriate load and measure.

Unit : mm

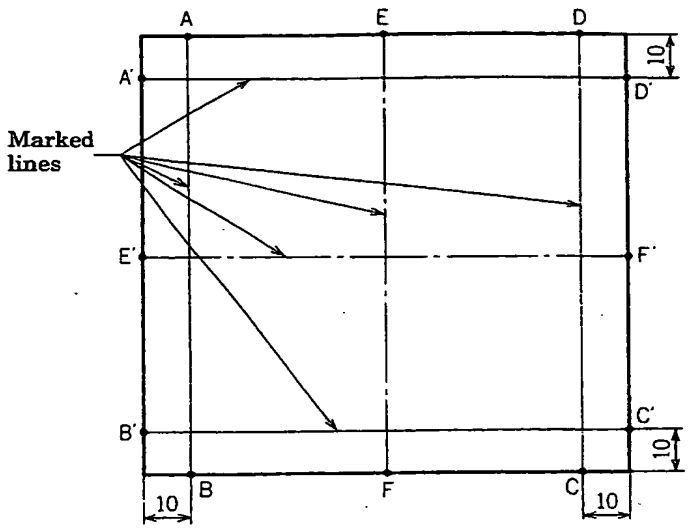

Fig. 7 Measuring points of change in the length of the floor sheet

6.8 Change test of length by water absorption Length shall be measured by using a measuring instrument with a precision of 0.05 mm. Turn the surface of test piece upward and place it on a test stand specified in Table 4. Allow to stand a test piece for at least 12 h in a test room under the conditions specified in **6.1 a)**. Measure the length of three marked lines respectively, in both longitudinal and lateral directions of the floor tile as shown in Fig. 4. Take 300 mm × 300 mm of the floor sheet as a test sample and measure the marked lines shown in Fig. 7.

Then, allow to stand the test piece in the water tank kept at 20 ± 2 °C in temperature. Take out the test piece immediately after 120 h, and measure the length of each marked line to obtain the ratio of change to the length before test.

Change ratio of length by water absorption for each width and length shall be calculated according to the following formula.

$$L_w = \left| \frac{L_0 - L_1}{L_0} \right| \times 100$$

where, L_w : change ratio of length by water absorption (%)

L_0 : length before test (mm)

L_1 : length after test (mm)

6.9 Heating loss test Mass shall be measured by using a measuring instrument with a precision of 1 mg. Allow to stand a test piece for at least 1 h in a test room under the conditions specified in **6.1 a)**, and measure the mass. Place the test piece on a stainless plate and sheet specified in Table 4 and put it horizontally in a thermostat oven with a stirrer (the capacity whose one side is at least 45 cm shall be used.) which is regulated to 100 ± 3 °C in temperature, keeping a distance of not less than 5 cm from the inner wall of the thermostat oven against relative positions respectively. Take out the test piece after 6 h and allow to stand 1 h in a room, and measure the mass again.

Rate of the heating loss shall be calculated with the following formula.

$$M_h = \frac{M_0 - M_1}{M_0} \times 100$$

where, M_h : rate of heating loss (%)
M_0 : initial mass (g)
M_1 : mass after heating for 6 h (g)

6.10 Staining test In the test, staining substance shown in Table 7(6) shall be employed. Wipe the surface of test piece with a dry cloth, drop down approximately 2 ml of the staining substance on it, cover it with a watch glass after confirming that the substance has spread in a circular shape. Allow to stand for 24 h, wash the test piece with water containing suitable neutral detergent and then with alcohol, wipe out the surface of test piece with a dried and clean gauze. Allow to stand for 1 h, and observe the change of colour, luster and blister of the dropped part by the visual observation.

Note (6) Staining substances other than in Table 7 shall be subjected to the agreement between the parties concerned with delivery.

Table 7 Staining substance

Staining substance	Quality
Soybean oil	Commercial edible oil
Lubricating oil	ISO VG 46 machine oil specified in **JIS K 2238**
95 % ethyl alcohol	In accordance with **JIS K 8102**.
2 % sodium hydroxide solution	In accordance with **JIS K 8576**.
5 % acetic acid solution	In accordance with **JIS K 1351**.
5 % hydrochloric acid solution	In accordance with **JIS K 1310**.
Cement paste	Normal portland cement specified in **JIS R 5210** shall be employed. Mass ratio of water for cement shall be 70 %.

6.11 Colour fading test Colour fading test shall be as follows.

a) Test shall be carried out according to method B of **JIS K 7350-2**.

b) Evaluation shall be carried out by observing the colour change in accordance with (a) of **4.2.1** (1) in **JIS A 1411**. Irradiation time shall be 150 h provide that, for the time being, irradiation time shall be taken 100 h by accepting method B of **2** (2) in **JIS K 7102**.

6.12 Slip test The slip test shall be as follows.

a) In the test, a slip test machine shown in Fig. 8 shall be employed.

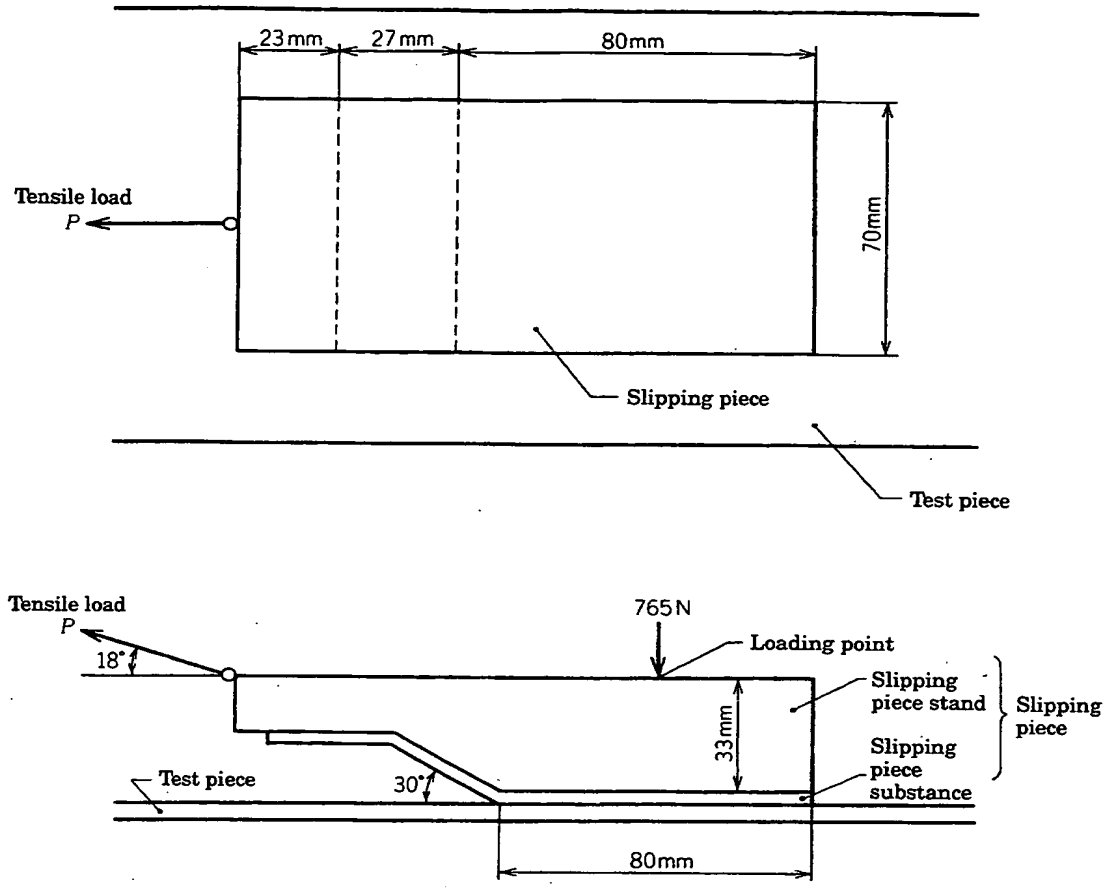

Fig. 8 Slip test machine

b) The size of test piece shall be at least 100 × 200 mm. Material of slipping piece shall be selected out of the followings according to the purpose of use. Hardness shall be according to spring type hardness test (type A) specified in **JIS K 6301**.

1) Rubber sheet: Those made of SBR having hardness (type A) of 72 to 80 and thickness of 3 mm to 6 mm.

2) Rubber sheet: Those made of SBR having hardness (type A) of 29 to 35 and thickness of 7 mm to 10 mm.

3) The others (sole of shoes for practical use etc.)

c) Surface condition of the test piece shall be selected out one of the followings in accordance with the purpose.

1) Cleaning and drying conditions.

2) Condition that class 7 of test powder 1 specified in **JIS Z 8901** is scattered at the rate of 10 g/m^2.

3) Condition that the mixture whose mass ratio is 20 : 9 : 1 of tap water, class 1 and class 7 of test powder 1 specified in **JIS Z 8901**, is scattered at the rate of 400 g/m^2.

4) Condition that the edible oil is scattered at the rate of 40 g/m².

5) The others (condition coated with wax etc.)

d) For the slip test, fix the slipping piece substance predetermined at the bottom face of the slipping piece stand which is 80 mm × 70 mm in size and made of iron, and apply the vertical load of 765 N to the slipping piece. Pull the slip test machine to oblique upward of 18° with the elastic stress rate of 785 N/s at a moment that the slipping piece is touched to test piece, and measure the maximum tensile load obtained. A slip resistance coefficient shall be calculated with the following formula.

$$C.S.R = \frac{P_{max}}{W}$$

where, $C.S.R$: a slip resistance coefficient
P_{max} : the maximum tensile load (N)
W : vertical load of 765 N

6.13 Abrasion test Abrasion test shall be carried out in accordance with **JIS A 1451**. When test cannot be carried out by this method, it shall be performed in accordance with **JIS A 1453** or **JIS K 7204**.

6.14 Flame retardance test Flame retardance test shall be carried out in accordance with **JIS A 1321**.

6.15 Delamination strength test Delamination strength test between sheet layers (7) shall be in accordance with the following procedures, provided that this method shall be applied to the vinyl floor sheet with foamed layer.

a) In the test, the test equipment which can pull toward 180° direction with the tensile speed of 200 ± 20 mm/min shall be employed.

b) The size of the test piece shall be 150 mm × 50 mm, and total six sheets in which three sheets taken from a longitudinal direction and three sheets from lateral direction shall be prepared for each test. Draw three marked lines on each surface of test pieces as shown in Fig. 9. Delaminate it to the part of approximately 20 mm between their sheet layers (7) with the tensile tester and read the peel load at this time.

Note (7) "Between sheet layers" means, 1) between surface layer and foamed layer, 2) between foamed layers, 3) between foamed layer and backing layer (textile, non-woven fabric or others).

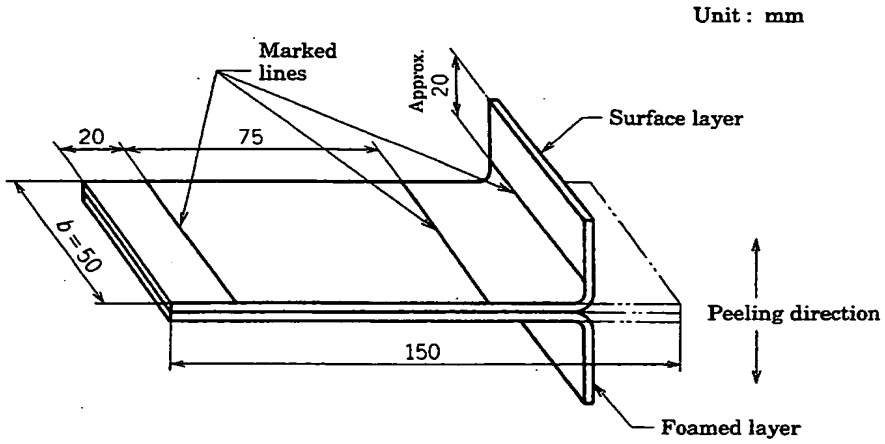

Fig. 9 Dimensions and marked lines of test piece for delamination strength test (an example)

c) Draw lines on the parts corresponding to 75 mm between the marked lines during testing on the peel load curve recorded as given in Fig. 10 and, furthermore, divide this portion by drawing another three lines at an even interval. Read the numerical values ($P_1 P_2 \cdots P_5$) at the intersection points of the peel load curve. Average of the peel load shall be calculated in accordance with the following formula.

$$W = \frac{P_1 + P_2 + \cdots P_5}{5}$$

where, W : Average of the peel load (N)

P_1 to P_5 : Intersection points for the peel load curve

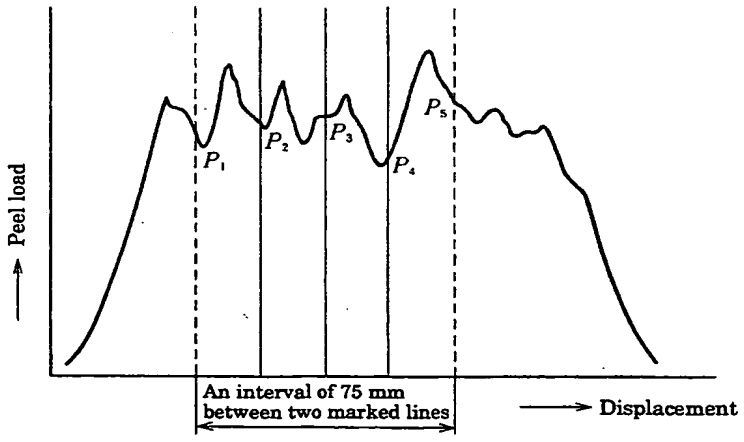

Fig. 10 Peel load curve (an example)

Peel strength shall be calculated according to the following formula.

$$F = \frac{W}{b}$$

where, F : peel strength (N/cm)

W : average of peel load (N)

b : width of test piece (cm)

6.16 Caster test

6.16.1 Test method The caster test shall be carried out in accordance with method A or method B.

6.16.2 In method A, light load method (load: 250 N) and heavy load method (load: 2 000 N) are included.

a) Basic example of the test equipment shall be as given in Fig. 11.

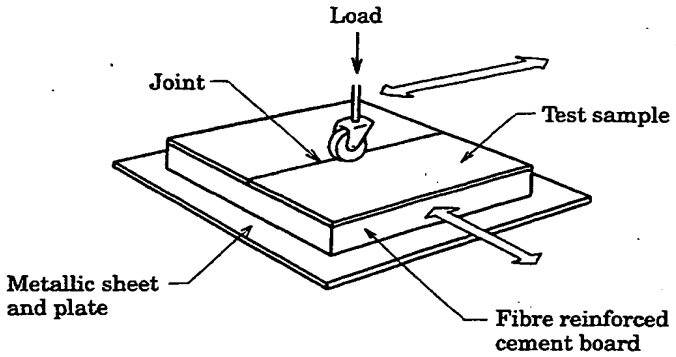

Fig. 11 Caster test (an example)

The test equipment shall be installed a board for placing test sample and a driving device which can operate the board to perpendicular direction and parallel direction. The board and the rotation axis of a caster shall be placed at right angles to each other and made to be able to move horizontally. At this time, with a revolution counter installed, it shall be prepared so as to read the speed of revolution.

Make a joint at the center of the test sample on the concrete board and integrate it by using a joint filler according to the type of the floor materials.

b) **Light load method** A caster which is made of the phenol resin reinforced by nylon and has dimensions of 46 ± 2.0 mmϕ, 20 ± 1 mm in width shall be employed. The load shall be applied 250 ± 3 N. The stroke of the board shall be 23.6 ± 0.8 r.p.m. for 210 ± 2 mm of the stroke width in one direction and 5.8 ± 0.2 r.p.m. for 150 ± 2 mm of the stroke width in another direction.

Revolution ratio shall be 4.07 ± 0.03 for one direction to another direction.

c) **Heavy load method** A caster which is made of steel and has dimensions of 110 ± 3 mmϕ, 50 ± 1 mm in width shall be employed. The load shall be applied $2\,000 \pm 10$ N. The stroke of the board shall be 7 ± 0.4 r.p.m. for 390 ± 2 mm of the stroke width in one direction and 1.72 ± 0.1 r.p.m. for 260 ± 2 mm of the stroke width in another direction.

Revolution ratio shall be 4.07 ± 0.03 for one direction to another direction.

d) Size of the test sample shall be 250 mm × 300 mm to 350 mm × 350 mm for light load method, and 600 mm × 600 mm to 700 mm × 700 mm for heavy load method.

e) Measuring time shall be approximately 8 h for light load method, and approximately 24 h for heavy load method.

f) Test sample shall be executed on a fiber reinforced cement board which is 10 mm or more in thickness specified in **JIS A 5430** with an adhesive designated by the test sample manufacturer. Draw some Swivel loci as shown in Fig. 12, repeat it during the predetermined times and measure the dent size before and after test. If destruction or blister are generated, test shall be stopped immediately and read the speed of revolution.

For the light load method, the dent size of surface shall be measured at four points just after stopping the operation and after one week and obtained the maximum dent size and average of dent sizes.

For heavy load method, the dent size of surface shall be measured at four points right after stopping the operation, and obtained the maximum dent size and average of dent sizes.

Unit : mm

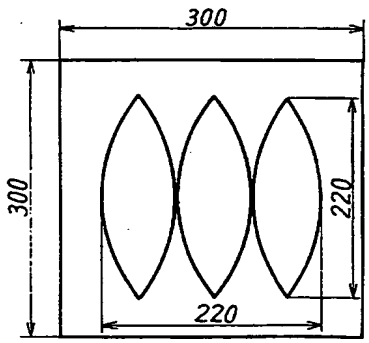

Fig. 12 Swivel locus

6.16.3 Method B shall be carried out in accordance with Informative reference 3 in **JIS L 1023**.

6.17 Flexibility test The flexibility test shall be as follows.

a) An equipment with a cylindrical mandrel whose diameters are 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110 and 120 mm respectively, and each length is at least 60 mm and which is fixed firmly on the level, is employed.

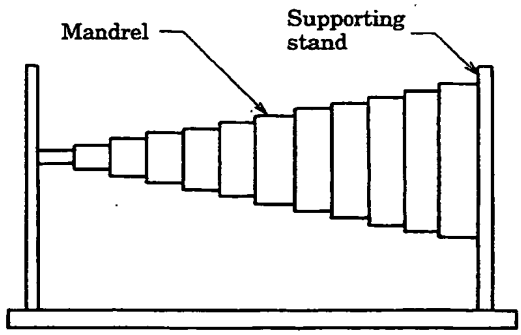

Fig. 13 Mandrel equipment (an example)

b) Test piece shall be 50 ± 1 mm × 225 mm and cut from length direction and width direction of the sample respectively.

1) Test shall be carried out after curing for at least 24 h at predetermined temperature for the test piece.

2) Temperature shall be 20 ± 2 °C and 5 ± 1 °C.

c) Test piece shall be flatten by getting rid of the peculiarity of deflection.

1) Place a test piece at right angle on the level to the mandrel, and bend it by winding 180° round at constant speed (within 3 to 5 s).

2) Check the crazes and cracks on the surface of the bent test piece by visual observation.

3) Predetermine the diameter of the mandrel that test piece may be cracked, carry out the test continuously with exchanging test piece, from the thick mandrel to thin mandrel one by one and find the diameter in thickness that the crazes and cracks is generated.

4) Test shall be carried out on respective test pieces which are taken out both the surface and the back.

d) The minimum diameter of a mandrel that the faults such as crazes and cracks do not generated in a test piece, shall be recorded.

6.18 Electrostatic test

6.18.1 Surface resistance test Surface resistance test shall be carried out with an apparatus given in Fig. 14.

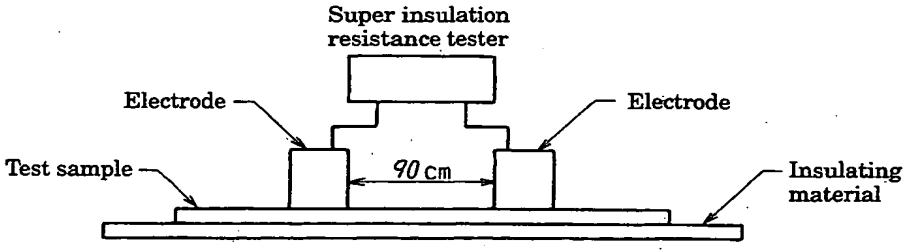

Fig. 14 Surface resistance test apparatus (an example)

a) Metallic cylinder which is 60 ± 5 mm in diameter, 2.0 ± 0.3 kg in mass and has a smoothing contact surface, shall be used as an electrode. Put the buffer layer of 60 ± 5 mm in diameter under the electrode adhering to the surface of test sample, provided that combined resistance of the electrode and the buffer layer shall be not exceeding 10 Ω. A super insulation resistance tester shall be used the insulation resistance tester.

b) Test sample shall be used that of 100 cm × 180 cm or over in size and standing for 24 h in a room where temperature is 23 ± 1 °C, and humidity (25 ± 2) %.

c) Put two electrodes keeping a distance of 90 cm from each other on the surface of test sample, apply 500 V for 30 s and read the numerical value with a super insulation resistance tester.

6.18.2 Leakage resistance test A equipment given in Fig. 15 shall be employed for the leakage resistance test.

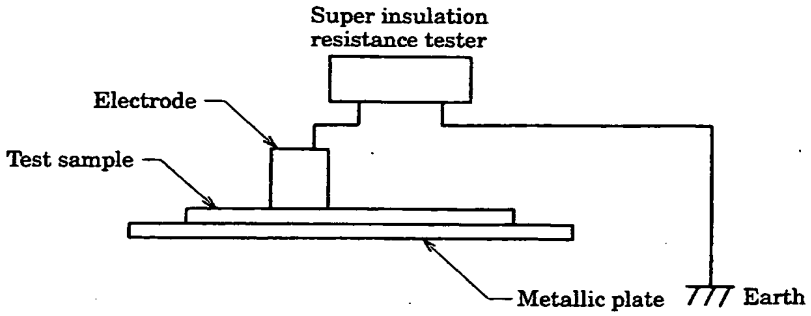

Fig. 15 Leakage resistance test equipment (an example)

a) The same electrodes, the buffer layer and the super insulation resistance tester described in **6.18.1 a)** shall be employed.

b) The same test sample and test conditions described in **6.18.1 b)** shall be used.

c) Put one electrode on the surface of test sample, ground the super insulation resistance tester, apply 500 V for 30 s and read the numerical value with a super insulation resistance tester.

6.18.3 Charge test Charge test shall be in accordance with **10** of **JIS L 1023**.

7 Test report

7.1 The following items shall be described in the test report.

a) Date that the test was carried out

b) Name of the test sample

c) Type or symbol and dimensions of the test sample

d) Material of the test sample

e) Temperature (°C) and relative humidity (%) during test

f) The other items which are needed for test

Attached Table 1 Normative references

Standard number	Title of standard
JIS A 0201	*Glossary of terms used in finishing building materials for interior and exterior uses*
JIS A 1321	*Testing method for incombustibility of internal finish material and procedure of buildings*
JIS A 1411	*Standard method of test for change in properties of plastics building materials resulting from out-door exposure*
JIS A 1451	*Method of abrasion test for building materials and part of building construction (Method of abrasion test for flooring materials method with rotating disk fitted friction and impact)*
JIS A 1453	*Method of abrasion test for building materials and part of building construction (abrasive-paper method)*
JIS A 5430	*Fiber reinforced cement boards*
JIS A 5705	*Floorcovering—PVC*
JIS B 7503	*Dial gauges*
JIS B 7526	*Squares*
JIS G 4305	*Cold rolled stainless steel plates, sheets and strip*
JIS K 1310	*Hydrochloric acid*
JIS K 1351	*Acetic acid*
JIS K 2238	*Machine oil*
JIS K 6301	*Physical testing methods for vulcanized rubber*
JIS K 6900	*Plastics—Vocabulary*
JIS K 7102	*Testing method for colour fastness of plastics upon exposure to light of the carbon arc*
JIS K 7204	*Testing method for abrasion resistance of plastics by abrasive wheels*
JIS K 7350-2	*Plastics—Method of exposure to laboratory light sources Part 2 : Xenon-arc sources*
JIS K 8102	*Ethanol*
JIS K 8576	*Sodium hydroxide*
JIS L 1023	*Testing methods for several characteristics of textile floor coverings*
JIS R 3202	*Float glass and polished plate glass*
JIS R 5210	*Portland cement*
JIS Z 8703	*Standard atmospheric conditions for testing*
JIS Z 8901	*Test powders and test particles*

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JAPANESE INDUSTRIAL STANDARD

Tile carpet

JIS L 4406 : 2000

(JCMA)

Revised 2000-12-20

Investigated by

Japanese Industrial Standards Committee

Published by

Japanese Standards Association

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ICS 59.080.60

Descriptors : tiles, carpet tiles, carpets

Reference number : JIS L 4406 : 2000 (J)

JAPANESE INDUSTRIAL STANDARD JIS

TILE CARPET L 4406: 2000

Tile carpet

1. Scope This standard specifies the requirements for tile carpet (1) of tufted carpet.

Note (1) Floor carpets made of fibers prepared in a prescribed shape for the purpose of using in a modular form. Tile carpet is also called as carpet tile.

JIS

タイルカーペット

JIS L 4406：2000

(JCMA)

(2006 確認)

平成 12 年 12 月 20 日 改正

日本工業標準調査会 審議

(日本規格協会 発行)

まえがき

この規格は，工業標準化法第14条において準用する第12条第1項の規定に基づき，日本カーペット工業組合(JCMA)から工業標準原案を具して日本工業規格を改正すべきと申出があり，日本工業標準調査会の審議を経て，通商産業大臣が改正した日本工業規格である。これによってJIS L 4406：1998は改正され，この規格に置き換えられる。

JIS L 4406には，次に示す附属書がある。

附属書(参考) 電気抵抗試験方法

主 務 大 臣：通商産業大臣 制定：平成10. 6. 20 改正：平成 12. 12. 20
官 報 公 示：平成 12. 12. 20
原 案 作 成 者：日本カーペット工業組合
(〒550-0005 大阪市西区西本町1丁目9番16号 TEL 06-6543-3834)
審 議 部 会：日本工業標準調査会 消費生活部会 (部会長 小見山 二郎)

この規格についての意見又は質問は，上記原案作成者又は経済産業省 産業技術環境局標準課 環境生活標準化推進室 [〒100-8901 東京都千代田区霞が関1丁目3−1 TEL 03-3501-1511(代表)] へ連絡してください。

なお，日本工業規格は，工業標準化法第15条の規定によって，少なくとも5年を経過する日までに日本工業標準調査会の審議に付され，速やかに，確認，改正又は廃止されます。

日本工業規格 JIS

タイルカーペット L 4406 : 2000

Tile carpet

1. 適用範囲 この規格は，タフテッドカーペットのタイルカーペット(1)の要求事項について規定する。

注(1) モジュール方式で使用することを目的として，あらかじめ決められた形状で作成した繊維製床敷物。カーペットタイルともいう。

2. 引用規格 次に掲げる規格は，この規格に引用されることによって，この規格の規定の一部を構成する。これらの規格は，その最新版(追補を含む。)を適用する。

JIS A 5430 繊維強化セメント板
JIS B 7503 ダイヤルゲージ
JIS B 7514 直定規
JIS B 7524 すきまゲージ
JIS B 7526 直角定規
JIS G 4305 冷間圧延ステンレス鋼板及び鋼帯
JIS K 2240 液化石油ガス(LPガス)
JIS L 0212-1 繊維製品用語(衣料を除く繊維製品)―第1部：繊維製床敷物
JIS L 0805 汚染用グレースケール
JIS L 0842 紫外線カーボンアーク灯光に対する染色堅ろう度試験方法
JIS L 0849 摩擦に対する染色堅ろう度試験方法
JIS L 1013 化学繊維フィラメント糸試験方法
JIS L 1021 繊維製床敷物の構造に関する試験方法
JIS L 1022 繊維製床敷物の荷重による厚さ減少に関する試験方法
JIS L 1023 繊維製床敷物の性能に関する試験方法
JIS L 1030-1 繊維製品の混用率試験方法―第1部：繊維鑑別
JIS L 1030-2 繊維製品の混用率試験方法―第2部：繊維混用率
JIS L 1095 一般紡績糸試験方法
JIS R 3202 フロート板ガラス及び磨き板ガラス
JIS Z 1528 両面粘着テープ
JIS Z 8305 活字の基準寸法
JIS Z 8401 数値の丸め方

3. 定義 この規格の中で用いる主な用語の定義は，JIS L 0212-1によるほか，JIS L 1021の3.(定義)による。

4. 種類 タイルカーペットの種類は，5.3～5.5に定める品質によって，第一種及び第二種とする。また，パイルの形状及び難燃性によって次のとおりとする。

a) パイルの形状による種類

★内容についてのお問合せは，規格開発部標準課〔FAX(03)3405-5541 TEL(03)5770-1571〕へご連絡ください。
★JIS 規格票の正誤票が発行された場合は，次の要領でご案内いたします。
(1) 当協会発行の月刊誌“標準化ジャーナル”に，正・誤の内容を掲載いたします。
(2) 原則として毎月第3火曜日に，“日経産業新聞”及び“日刊工業新聞”の JIS 発行の広告欄で，正誤票が発行された JIS 規格番号及び規格の名称をお知らせいたします。
なお，当協会の JIS 予約者の方には，予約されている部門で正誤票が発行された場合，自動的にお送りいたします。
★JIS 規格票のご注文は，普及事業部カスタマーサービス課〔TEL(03)3583-8002 FAX(03)3583-0462〕又は下記の当協会各支部におきましてもご注文を承っておりますので，お申込みください。

JIS L 4406
タイルカーペット

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